REMARKS

Reconsideration and allowance of the claims are requested in view of the above amendments and the following remarks. Claims 1, 19-20, 27, 45-46, 53 and 60 have been amended. Support for the claim amendments may be found in the specification and claims as originally filed. No new matter has been added. Claims 18, 44, 59 and 66 have been cancelled without prejudice or disclaimer.

Upon entry of this amendment, claims 1-17, 19-43, 45-58 and 60-65 will be pending in the present application, with claims 1, 27, 53 and 60 being independent.

1. Specification

The Office Action objects to the abstract of the disclosure because the recited text exceeds the prescribed maximum number of words (more than 150 words). The abstract has been amended to recite less than 150 words and, therefore, is now in compliance with MPEP 608.01(b).

For at least the above reason, reconsideration and withdrawal of the objection to the abstract are respectfully requested.

2. Rejections Under 35 U.S.C. §101

The Office Action rejects claim 53 under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. Applicants respectfully traverse this rejection for at least the following reasons.

The Office Action asserts that claim 53 refers to a "candidate accumulator" in line 5. However, claim 53 is directed to an apparatus comprising a candidate accumulator. Specifically, claim 53 recites:

> For use with a database system having a workload comprising a set of queries that have been executed on a database,

> an apparatus for selecting a set of partitioned physical database structures for access by the database system in executing queries comprising:
>
> a candidate accumulator . . . (emphasis added).

Support for the apparatus recited in the claim may be found at least on pages 3-6 in the specification and FIG. 1. Therefore, claim 53 is directed to an apparatus, which is statutory subject matter under 35 U.S.C. §101.

For at least the above reason, reconsideration and withdrawal of the rejection of claim 53 under 35 U.S.C. §101 are respectfully requested.

3. Rejections Under 35 U.S.C. §112

The Office Action rejects claims 27-52 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse this rejection for at least the following reasons.

The Office Action asserts that independent claim 27 refers to method steps while the dependent claims refer to a computer readable medium. However, claim 27 is directed to a computer readable medium, and not a method *per se*. Specifically, claim 27 recites:

> For use with a database system having a workload comprising a set of queries that have been executed on the database, a computer readable medium having computer executable steps stored thereon for performing method steps for selecting a set of partitioned physical database structures for access by the database system in executing queries, the method steps comprising:
>
> compiling a pool of partitioned candidate structures . . . (emphasis added).

Therefore, claim 27 is directed to a computer readable medium having computer executable steps stored thereon. As a result, claim 27 is definite and is allowable. Claims 28-43 and 45-52

depend from claim 27 and, therefore, properly refer to the computer readable medium recited in claim 27. Consequently, claims 28-43 and 45-52 are also allowable.

Since claim 44 has been canceled, the rejection of this claim is rendered moot.

For at least the above reason, reconsideration and withdrawal of the rejection of claims 27-43 and 45-52 under 35 U.S.C. §112 are respectfully requested.

4. Rejections Under 35 U.S.C. §102

The Office Action rejects claims 1-4, 17-20, 23-25, 27-30, 43-46, 49-51, 53-55, 58-59, 60-62 and 65-66 under 35 U.S.C. §102(e) as being anticipated by Aggarwal et al. (U.S. Patent 6,922,700). Applicants respectfully traverse this rejection for at least the following reasons.

The Office Action on page 4 asserts that Aggarwal et al. teaches compiling a pool of partitioned candidate structures (citing col. 3, lines 52-63), and for each query, determining potentially relevant structures and associating at least one partitioning method with each structure (citing col. 5, lines 7-22). The Office Action also asserts that Aggarwal et al. teaches enumerating a set of partitioned physical structures from the pool of partitioned candidate structures (citing col. 9, line 54 – col. 10, line 2).

Aggarwal et al. discloses a system for providing similarity indexing and searching in multi-dimensional databases (see abstract). Aggarwal et al. discloses a server logic 140 comprising a build routine 105 for building an inverted grid index 170, a correlation table 180, and a correlation support count table 190, all of which are maintained by the server logic 140 (see col. 3, lines 52-55; FIG. 1). The Office Action appears to be interpreting the above elements of the server logic 140 in Aggarwal et al. as "a pool of partitioned candidate structures". Additionally, Aggarwal et al. discloses a table of a collection of 8 data points in a 3-dimensional space. The table comprises three attribute fields (see col. 5, lines 7-22). The Office Action asserts that the attribute fields disclosed in Aggarwal et al. are used to specify partitions of the data points. Furthermore, Aggarwal et al. discloses that as similarity candidates are evaluated

via a similarity function, the results of the evaluation (scores) for each similarity candidate are stored for further evaluation in a score table 195 (see col. 9, lines 54-59). The Office Action asserts that the score table is used to list possible candidate structures.

The independent claims of the present application have been amended to include, in some form, the element of horizontal partitioning. As discussed in the specification of the present application, horizontal partitioning is an important aspect of physical database design that has significant impact on performance, allowing access methods such as tables, indexes and materialized view to be partitioned into disjoint sets of rows that are physically stored and accessed separately (see page 1, second paragraph).

Aggarwal et al. fails to disclose or suggest, at the sections cited by the Office Action or elsewhere, horizontal partitioning of any kind. Therefore, Aggarwal et al. fails to disclose or suggest the elements of compiling a pool of horizontally partitioned candidate structures, for each query determining potentially relevant structures and associating at least one horizontal partitioning method with each structure, selecting potentially relevant structures with associated horizontal partitioning methods, and enumerating a set of horizontally partitioned physical structures from the pool of partitioned candidate structures, as included in amended independent claims 1 and 27. Independent claims 53 and 60 have been amended to include similar elements. Therefore, since Aggarwal et al. does not teach, or even suggest, each and every element of claims 1, 27, 53 and 60, these claims are not anticipated by Aggarwal et al. and are allowable.

Furthermore, the Office Action on page 5 (with respect to claim 18) asserts that Aggarwal et al. teaches merging partitioned structures in the pool of partitioned candidate structures (citing col. 12, lines 19-44). Aggarwal et al. discloses that the process of discretizing into grids has considerable edge effects because two adjacent intervals will contain values which are very close to one another (see col. 12, lines 24-29). The edge effects can be eliminated by using a second level of discretization, where each of the k discretized grids are further subdivided into c equi-depth ranges. Therefore, contrary to the assertions in the Office Action,

the second level of discretization disclosed in Aggarwal et al. is not used to merge the different data from the inverted grid list. Moreover, Aggrawal et al. fails to disclose or suggest, in the sections cited by the Office Action or elsewhere, the elements of merging partitioned structures in the pool of partitioned candidate structures, as included in amended independent claims 1 and 27. Independent claims 53 and 60 have been amended to include similar elements. For at least the above reasons, claims 1, 27, 53 and 60 are allowable over Aggarwal et al.

Claims 2-4, 17, 19-20 and 23-25 depend from claim 1. Claims 28-30, 43, 45-46 and 49-51 depend from claim 27. Claims 54-55 and 58 depend from claim 53. Claims 61-62 and 65 depend from claim 60. As discussed above, claims 1, 27, 53 and 60 are allowable. For at least this reason, and the features recited therein, claims 2-4, 17, 19-20, 23-25, 28-30, 43, 45-46, 49-51, 54-55, 58, 61-62 and 65 are also allowable.

Since claims 18, 44, 59 and 66 have been canceled, the rejection of these claims is rendered moot.

Reconsideration and withdrawal of the rejection of claims 1-4, 17, 19-20, 23-25, 27-30, 43, 45-46, 49-51, 53-55, 58, 60-62 and 65 under 35 U.S.C. §102(e) are respectfully requested.

5. Rejections Under 35 U.S.C. §103

A. Obviousness in view of Aggarwal et al. and Wang

The Office Action rejects claims 5-6, 21-22, 31-32, 47-48, 56 and 63 under 35 U.S.C. § 103(a) as being unpatentable over Aggarwal et al. in view of Wang (U.S. Patent 5,758,345). Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Aggarwal et al. fails to disclose or suggest horizontal partitioning and merging partitioned structures in a pool of partitioned candidate structures. Wang fails to cure this defect in Aggarwal et al. Wang discloses a method for use with a massively parallel processor system or a distributed computer system for providing a physical design layout database across several nodes of the system (see abstract). Wang also discloses horizontal

fragmentation of a logical volume (e.g., see col. 7, lines 57-65). However, Wang fails to disclose or suggest the elements of for each query determining potentially relevant structures and associating at least one horizontal partitioning method with each structure, enumerating a set of horizontally partitioned physical structures from a pool of partitioned candidate structures, and merging partitioned structures in the pool of partitioned candidate structures, as included in amended independent claims 1 and 27. As discussed above, independent claims 53 and 60 have been amended to include similar elements. Therefore, since Aggarwal et al. and Wang, alone or in combination, fail to teach or suggest every element of claims 1, 27, 53 and 60, these claims are allowable over Aggarwal et al. in view of Wang.

Claims 5-6 and 21-22 depend from claim 1. Claims 31-32 and 47-48 depend from claim 27. Claim 56 depends from claim 53. Claim 63 depends from claim 60. As discussed above, claims 1, 27, 53 and 60 are allowable. For at least this reason, and the features recited therein, claims 5-6, 21-22, 31-32, 47-48, 56 and 63 are also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claims 5-6, 21-22, 31-32, 47-48, 56 and 63 under 35 U.S.C. §103(a) are respectfully requested.

B. Obviousness in View of Aggarwal et al. and Pederson et al.

The Office Action rejects claims 7-16, 26, 33-42, 52, 57 and 64 under 35 U.S.C. § 103(a) as being unpatentable over Aggarwal et al. in view of Pederson et al. (U.S. Patent 5,864,842). Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Aggarwal et al. fails to disclose or suggest horizontal partitioning and merging partitioned structures in a pool of partitioned candidate structures. Pederson et al. fails to cure this defect in Aggarwal et al. Pederson et al. discloses a method for optimizing SQL queries in a relational database management system using hash star join operations (see col. 1, lines 57-60). However, Pederson et al. fails to disclose or suggest the elements of compiling a pool of horizontally partitioned candidate structures, for each query determining potentially

relevant structures and associating at least one horizontal partitioning method with each structure, selecting potentially relevant structures with associated horizontal partitioning methods, enumerating a set of horizontally partitioned physical structures from the pool of partitioned candidate structures, and merging partitioned structures in the pool of partitioned candidate structures, as included in amended independent claims 1 and 27. As discussed above, independent claims 53 and 60 have been amended to include similar elements. Therefore, since Aggarwal et al. and Pederson et al., alone or in combination, fail to teach or suggest every element of claims 1, 27, 53 and 60, these claims are allowable over Aggarwal et al. in view of Pederson et al.

For at least the above reasons, claims 1, 27, 53 and 60 are allowable over Aggarwal et al. in view of Pederson et al.

Claims 7-16 and 26 depend from claim 1. Claims 33-42 and 52 depend from claim 27. Claim 57 depends from claim 53. Claim 64 depends from claim 60. As discussed above, claims 1, 27, 53 and 60 are allowable. For at least this reason, and the features recited therein, claims 7-16, 26, 33-42, 52, 57 and 64 are also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claims 7-16, 26, 33-42, 52, 57 and 64 under 35 U.S.C. §103(a) are respectfully requested.

6. Conclusion

Accordingly, in view of the above amendment and remarks it is submitted that the claims are patentably distinct over the prior art and that all the rejections to the claims have been overcome. Reconsideration and reexamination of the present application is requested. Based on the foregoing, applicants respectfully request that the pending claims be allowed, and that a timely Notice of Allowance be issued in this case. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the applicants' attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee that is not covered by an enclosed check please charge any deficiency to Deposit Account No. 50-0463.

Respectfully submitted,

Microsoft Corporation

Date: 10/20/06

By: _____

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Kate Marochkina
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